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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,441	10/08/2003	Hiroshi Komine	11-1137	7118

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EXAMINER

GOLUB, MARCIA A

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/681,441

Applicant(s)

KOMINE, HIROSHI

Examiner

Marcia A. Golub

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on 6/21/06 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the length of the fiber) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Levenson disclose the length of the fiber to range from 10 cm to hundreds of meters depending on the application.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine comes from Levenson (6,661,957) who suggested to modify his own invention by substituting "holey" PCF with a "holey" PGB fiber. Also, the applicant's attention is pointed to page 3 lines 13 to 16 of the previous office action, where the examiner provided a valid motivation for combining references.

Also, Levenson (6,496,634) does not teach using Raman fiber, as the applicant's representative incorrectly asserts, but rather he uses a "holey" photonic crystal fiber, as evidenced by column 7 lines 51-53. The reference does not teach away from using a photonic bandgap fiber, since "teaching away" mean stating specifically that a particular combination or any other combination not disclosed in the specification would not work.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levenson (6,496,634) hereinafter '634 and further in view of Sanghera et al. (2005/0025965) hereinafter '965.

Regarding **claims 1, 4-6**, Fig 10 of '634 discloses a Raman laser comprising:

"a fiber coupled diode array of semiconductor lasers [101, 102] having a nominal output wavelength in the range of 940-980 nm [942.8 nm] (5/2-4)

a hollow core photonic crystal fiber [100] filled with H₂ gas, coupled to the output of said fiber coupled diode array which provides an output wavelength in the range of 1520 to 1650 nm [1550 nm]." (7/49-50, 4/66-67)

'634 does not disclose the hollow core photonic crystal fiber (PCF) to be a hollow core photonic band gap fiber (PBG). However, PBG fiber is a special type of PCF and is disclosed by '965 (paragraph 0006).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '965 into the device of '634 by making the "holey" PCF to be a "holey" PGB fiber for at least the purpose of reducing Rayleigh back scattering and Kerr effects.

Claims 2, 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over '634 and '965 as applied to claims 1 and 6 above, and further in view of Grudinin et al. (2003/0021302) hereinafter '302.

Regarding **claims 2, 3 and 8**, '634 and '965 disclose a Raman laser as disclosed above. As an example '634 uses a pump laser with an output wavelength of 942.8 nm and H₂ as a Raman medium, he also mention using D₂ as a Raman medium (7/54). '634 does not specify using a Yb fiber laser with an output wavelength 1060-1120 nm. '302 discloses using Yb-doped fiber laser (YDFL) designed to lase between 1060-1120 nm (paragraph 3) to pump a Raman laser. Since the Raman shift for D₂ is 2991 cm⁻¹ (Table 1 of Levenson) using D₂ in combination with the YDFL laser will result in an

output of 1552 nm (@ 1060 nm input), which is the desired output. Therefore, using YDFL laser is consistent with the intended use of the device disclosed by Levenson.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of '302 into the device of '634 and '965 by using a YDFL laser to pump the D₂ Raman medium for at least the purpose of producing a wavelength signal of 1550 nm, which is a wavelength commonly used in optical communication systems.

Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over '634, '965 and '302 as applied to claims 6 and 8 above, and further in view of Bobbs et al. (4,922,495) hereinafter '495.

Regarding **claims 7 and 9**, '634, '965 and '302 disclose, a device and a method for shifting the output of a laser to an "eye-safe" wavelength as applied above. They do not disclose a Stokes seed source coupled to the hollow core fiber. However, combining Stokes seed source with the Raman laser is well known in the art, as evidenced by '495 (Fig.1). '495 discloses a Raman amplifier comprising: optical fiber Raman cell (Abstract) filled with H₂ gas (2/41) and a Stokes seed source.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of '495 into the device of '634, '965 and '302 by providing a Stokes seed source for the Raman laser for at least the purpose of amplifying the laser signal.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

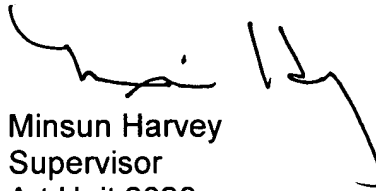
Contact Info

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-8602. The examiner can normally be reached on M-F 9-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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